

Amendment Filed in response to
Office Action Dated 16 February 2006Amendments to the Claims

Please amend the claims to read as follows:

1. (Currently Amended) A plastic comprising a polymer admixed with a mineralized ash filler, wherein the filler is characterized by the toxicity characteristic leaching procedure (TCLP) filtrate concentration of each element listed in the following table being not greater than the corresponding TCLP filtrate concentration:

<u>Element</u>	<u>TCLP filtrate concentration, milligrams per milliliter</u>
<u>As</u>	<u>0.02</u>
<u>Ba</u>	<u>4.00</u>
<u>Cd</u>	<u>0.100</u>
<u>Cr</u>	<u>0.800</u>
<u>Pb</u>	<u>0.400</u>
<u>Hg</u>	<u>0.020</u>
<u>Se</u>	<u>0.12</u>
<u>Ag</u>	<u>0.400</u>
<u>Ni</u>	<u>0.10</u>
<u>Zn</u>	<u>0.10.</u>

2. (Original) The plastic of claim 1, wherein the polymer is a thermoplastic.

3. (Original) The plastic of claim 2, wherein the polymer is substantially a homopolymer selected from the group consisting of polyolefins, polyoxymethylenes, polystyrenes, polyamides, polyimides, polyesters, fluoropolymers, polyacrylates, polyarylates, polyaryletherketones, polynitriles, polybenzimidazoles, polycarbonates, polyethers, polyphenylene ethers, polyphenylene sulfides, polysulfones, polyaryl sulfones, polyvinyl chlorides, and polyurethanes.

4. (Original) The plastic of claim 2, wherein the polymer is a copolymer of at least two polymers selected from the group consisting of polyolefins, polyoxymethylenes, polystyrenes, polyamides, polyimides, polyesters, fluoropolymers, polyacrylates, polyarylates,

polyaryletherketones, polynitriles, polybenzimidazoles, polycarbonates, polyethers, polyphenylene ethers, polyphenylene sulfides, polysulfones, polyaryl sulfones, polyvinyl chlorides, and polyurethanes.

5. (Original) The plastic of claim 2, wherein the polymer is a polymer of at least one monomer selected from the group consisting of ethylene, propylene, 1-pentene, 1-butene, 4-methyl-1-pentene, 1-hexene, 1-octene, 1-decane, styrene, acrylonitrile, maleic anhydride, butadiene, ethylidene norbornene, 1,4-hexadiene, 1,5-hexadiene, 1,7-octadiene, 1,9-decadiene, vinyl chloride, and dicyclopentadiene.

6. (Original) The plastic of claim 2, wherein the polymer is a blend of at least two polymers selected from the group consisting of polyolefins, polyoxymethylenes, polystyrenes, polyamides, polyimides, polyesters, fluoropolymers, polyacrylates, polyarylates, polyaryletherketones, polynitriles, polybenzimidazoles, polycarbonates, polyethers, polyphenylene ethers, polyphenylene sulfides, polysulfones, polyaryl sulfones, polyvinyl chlorides, and polyurethanes.

7. (Original) The plastic of claim 6, wherein the polymers are miscible.

8. (Original) The plastic of claim 6, wherein the polymers are immiscibly blended.

9. (Original) The plastic of claim 1, wherein the polymer is a thermoset.

10. (Original) The plastic of claim 9, wherein the polymer is selected from the group consisting of diallyl phthalates, amine-formaldehyde polymers, cyanate esters, epoxies, phenolics, unsaturated polyesters, bismaleimides, polyurethanes, silicones, acrylamates, and vinyl esters.

11. (Original) The plastic of claim 1, comprising not more than about 60% by weight mineralized ash filler.

12. (Original) The plastic of claim 1, comprising not more than about 40% by weight mineralized ash filler.

13. (Original) The plastic of claim 1, comprising not more than about 25% by weight mineralized ash filler.

14-15. (Canceled)

16. (Original) The plastic of claim 1, wherein the composition comprises the mineralized ash filler in an amount sufficient to lower the viscosity of the composition at a temperature in the range 170 to 270 degrees Celsius, relative to the viscosity of the polymer alone at the same temperature and shear rate.

17. (Original) The plastic of claim 1, wherein the mineralized ash filler comprises a mineralized fly ash.

18. (Original) The plastic of claim 17, wherein the mineralized fly ash is obtained from a coal-burning furnace.

19. (Original) The plastic of claim 17, wherein the leachable metal content of the mineralized fly ash is not greater than about 10 milligrams per milliliter, as assessed using ASTM Standard Test Method D3682-01.

20. (Original) The plastic of claim 17, wherein the leachable metal content of the mineralized fly ash is not greater than about 5 milligrams per milliliter, as assessed using ASTM Standard Test Method D3682-01.

21. (Original) The plastic of claim 17, wherein the leachable metal content of the mineralized fly ash is not greater than about 2 milligrams per milliliter, as assessed using ASTM Standard Test Method D3682-01.

22. (Original) The plastic of claim 17, wherein the leachable metal content of the mineralized fly ash is not greater than about 1 milligram per milliliter, as assessed using ASTM Standard Test Method D3682-01.
23. (Original) The plastic of claim 17, wherein i) the leachable lead content of the mineralized fly ash is not greater than about 0.2 milligram per milliliter; ii) the leachable chromium content of the mineralized fly ash is not greater than about 0.5 milligram per milliliter; and iii) the leachable cadmium content of the mineralized fly ash is not greater than about 0.1 milligram per milliliter, as assessed using ASTM Standard Test Method D3682-01.
24. (Original) The plastic of claim 17, wherein not more than about 1% by weight of the ash particles are retained on an American Standard Sieve Series (ASSS) No. 30 sieve.
25. (Original) The plastic of claim 17, wherein not more than about 1% by weight of the ash particles are retained on an ASSS No. 50 sieve.
26. (Original) The plastic of claim 17, wherein not more than about 5% by weight of the ash particles are retained on an ASSS No. 100 sieve.
27. (Original) The plastic of claim 17, wherein not more than about 25% by weight of the ash particles are retained on an ASSS No. 200 sieve.
- 28-32. (Canceled)
33. (Original) The plastic of claim 1, further comprising a second filler.
34. (Original) The plastic of claim 33, wherein the second filler is a nanofiller.
35. (Canceled)

36. (Original) The plastic of claim 34, wherein the nanofiller is a nanoclay.

37-40. (Canceled)

41. (Previously Presented) The plastic of claim 36, wherein the nanoclay is montmorillonite that has been surface-treated to decrease association of nanoclay particles with one another.

42. (Original) The plastic of claim 36, comprising not more than about 7% by dry weight of the nanoclay.

43. (Original) The plastic of claim 36, wherein the number average maximum dimension of the nanoclay particles is not greater than about 500 nanometers.

44-47. (Canceled)

48. (Original) A manufactured article comprising the plastic of claim 1.

49. (Original) The article of claim 48, formed into a building material.

50. (Original) The article of claim 49, wherein the building material is selected from the group consisting of roofing, siding, insulation, piping, railing, fencing, decking, flooring, framing, and trimming materials.

51. (Original) The article of claim 49, wherein the building material is a plank.

52. (Original) The article of claim 49, wherein the building material is an ornamental building material.

53. (Original) The article of claim 49, wherein the building material is a structural building material.

54-58. (Canceled)

59. (Currently Amended) A method of making a plastic, the method comprising incorporating a mineralized ash filler into a polymer resin and thereafter solidifying the resin to form the plastic, wherein the filler is characterized by the toxicity characteristic leaching procedure (TCLP) filtrate concentration of each element listed in the following table being not greater than the corresponding TCLP filtrate concentration:

<u>Element</u>	<u>TCLP filtrate concentration, milligrams per milliliter</u>
<u>As</u>	<u>0.02</u>
<u>Ba</u>	<u>4.00</u>
<u>Cd</u>	<u>0.100</u>
<u>Cr</u>	<u>0.800</u>
<u>Pb</u>	<u>0.400</u>
<u>Hg</u>	<u>0.020</u>
<u>Se</u>	<u>0.12</u>
<u>Ag</u>	<u>0.400</u>
<u>Ni</u>	<u>0.10</u>
<u>Zn</u>	<u>0.10.</u>

60-65. (Canceled)

66. (Amended) The method of claim 59, wherein the ~~polymer~~plastic is formed into a shape selected from the group consisting of a plank, a sheet, a tube, and a pellet prior to solidifying the resin.

67-123. (Canceled)

124. (Currently Amended) A method of increasing the tensile modulus of a plastic, the method comprising incorporating up to about 60% by weight of a mineralized ash filler into the plastic, wherein the filler is characterized by the toxicity characteristic leaching procedure (TCLP) filtrate concentration of each element listed in the following table being not greater than the corresponding TCLP filtrate concentration:

<u>Element</u>	<u>TCLP filtrate concentration, milligrams per milliliter</u>
<u>As</u>	<u>0.02</u>
<u>Ba</u>	<u>4.00</u>
<u>Cd</u>	<u>0.100</u>
<u>Cr</u>	<u>0.800</u>
<u>Pb</u>	<u>0.400</u>
<u>Hg</u>	<u>0.020</u>
<u>Se</u>	<u>0.12</u>
<u>Ag</u>	<u>0.400</u>
<u>Ni</u>	<u>0.10</u>
<u>Zn</u>	<u>0.10.</u>

125-130. (Canceled)